

(19)
(12)

(KR)
(A)

(51) 。 Int. Cl. ⁷
H01L 21/76

(11)
(43)

2002 - 0015874
2002 03 02

(21) 10 - 2000 - 0049005
(22) 2000 08 23

(71)

136 - 1

(72)

240 - 20 301

(74)

:

(54)

, , - (gap - filling)

- (corner rounding)

(hump)

가

1 2 1 , 2, 1
 4 , 3 , 2, 1 2
 2 1 6 , 5 ,
 1 7 .

1a 1f

2a 2f

(corner rounding) (hump) (gap - filling)

가

가

LOCOS(Local Oxidation of Silicon)

fered LOCOS),

(Recessed) LOCOS

SILO(Sealed Interface LOCOS),

PBLOCOS(Poly Si Buf

(Design Rule)

256M DRAM

trench isolation)

al Vapor Deposition : , CVD

(etch back)

. BOX

)

가

BOX(buried oxide)

(shallow
(Chemic

STI

CMP

CMP

CMP

(moat) (groove)

1a 1f

1a (11) (12) (10) (11) (Chemical Vapor Deposition : , CVD) (11) (12) (13)

1b (110) (10) (13) (120) CMP (13)

(T1) (T1) (Reactive Ion Etching : , RIE) (T1)가 (100) 가

(100) (O₂ ashing) (T1) (100) (T1) ()

1c (120) (14) (14) HDP 1000 (high density plasma oxide) HDP

1d (density) (100) (120) (chemical mechanical polishing, CMP) (120) CMP 700 가

1e (hot) H₃PO₄ (110) (140) (110) (140) 가

1f (HF) 가 (140) 가 (groove, M) -

(100)

(M)

(143)

(reces

s hump)

가

가

가

가

가

가

가

가

,

, HDP

/

가

가

(gap - filling)

(corner rounding)

(hump)

가

1

2

1

, 2, 1
2

2

4

2

3

,

2,

1

1

5 ,

6 ,

1
7

(groove)

(CMP)

(moat)

(corner rounding)

가

가
가

2a 2f

2a

(20)

(21)

(21)

(Chemical Vapor Deposition : , CVD)

(22)

(21)

(21)

100 - 5000

(21)

(22)

(12)

(23)

2b

(23)

가

(210)

(210)

(200)

(220) CMP

(T2)

(21)

(Reactive Ion Etching : , RIE)

(T2)가

(200)

가

(O₂ ashing)

(200)

(T2) (200)
 (T2) ()

2c (220) (24)
 (24) HDP (high density plasma oxide)

(24) (density) (200)

2d (240)
 (211) (chemical mechanical polishing, CMP)
 CMP (240)
 (211) 50 - 2000 가

(H₃PO₄)
 가

(stopper)

2e (240) (C)
 (corner rounding) (200)
 (212) 가 가

2f (200)
 (241) (200)
 가

(241)

(3-
 dimensional gate induced leakage)
 (groove) (hump)

(57)

1.

가 1 2

1 ,

2, 1
2 ,

3 ,

2 4 ,

2 , 2, 1

1 5 ,

6 ,

1
7

2.

1 ,

1 2

3.

1 ,

1 100 - 5000

4.

1 ,

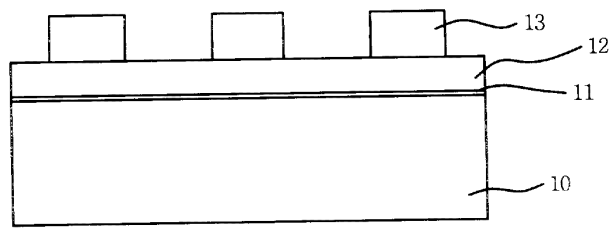
6

5.

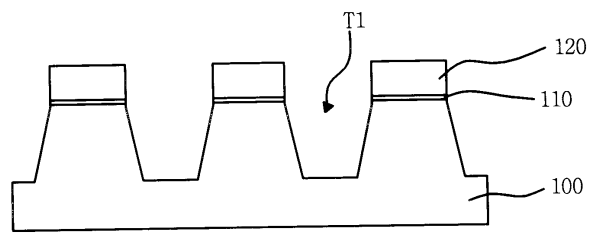
1 ,

5 1

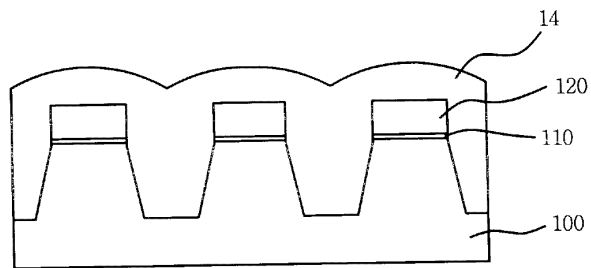
1a



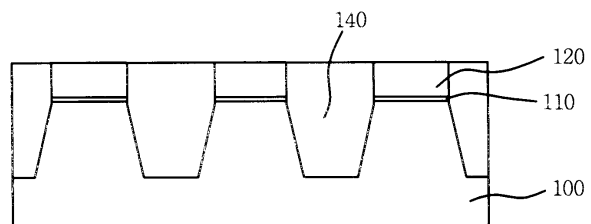
1b



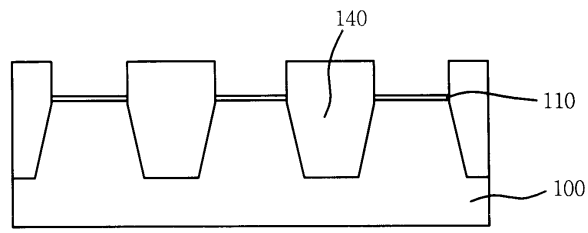
1c



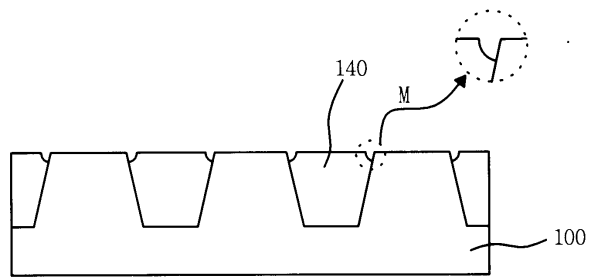
1d



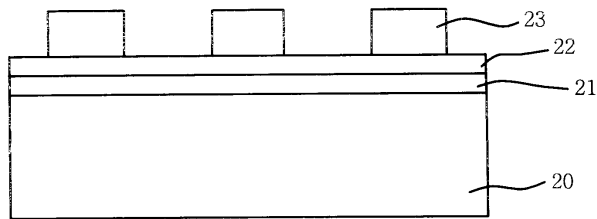
1e



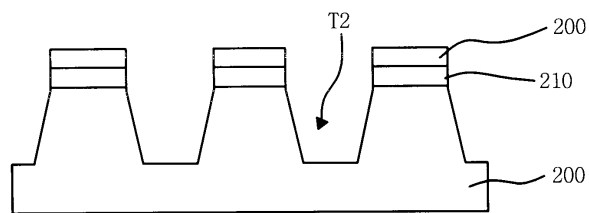
1f



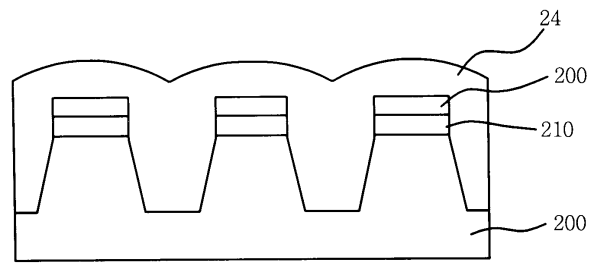
2a



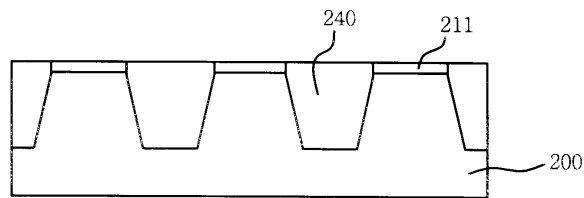
2b



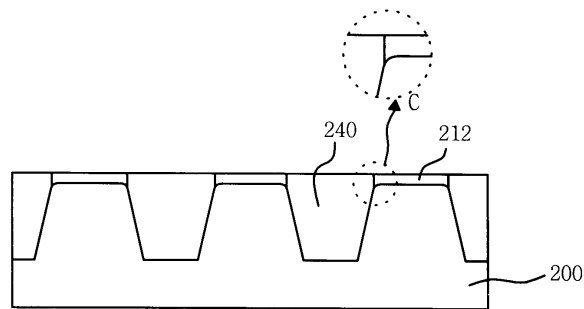
2c



2d



2e



2f

